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REPLIES TO QUERIES AS TO THE TREATMENT OF INFANTS IN
THE PRINCIPAL STATES OF EUROPE.

SCOTLAND: *By* DR. STARK, M.D., F.R.S.E.

Infants under 1 Year.

Q. 1. How are they brought into the world? i.e., are the mothers attended by women or by medical men? Are the women instructed? And if not, what is the mode of procedure with the baby as to umbilical cord, dressing, feeding, covering up, warming, &c.

A. Before the board of supervision for the relief of the poor existed, in every parish or combination of parishes having a medical officer for the relief of the poor, a full half of the women of Scotland were attended by midwives, or old women acting as such; and even yet it would be within the mark to say that a third of the women of Scotland are still attended by women during their confinement. A *very few* of these women have received regular training as nurses and have attended a course of lectures on midwifery; but such persons are almost quite confined to the towns. Over all the rural and insular districts of Scotland, the women who attend as midwives have had no training, but have been mothers of families, and are usually the most intelligent and *handy* of the women of the parish.

N.B.—In the following statement, it must be understood that what is mentioned as the usual custom applies to at least 80 if not to 85 per cent. of the people of Scotland; the remaining 15 or 20 per cent. belonging to the upper classes, whose customs with reference to the nursing, feeding, and treating of their children do not differ from those of the same class in England.

Whether the child has been assisted into the world by medical practitioners or by midwives, the subsequent procedure is nearly the same everywhere. The umbilical cord is tied firmly with tape about three inches from the navel, and again about six inches, and is then cut through with a pair of scissors between the ligatures. The child is received into a flannel garment, if possible one which belonged to the father, is carefully rolled up in it and given to an assistant who sits with it before the fire, keeping the child on its side to let any fluid escape from its mouth. After the mother is all right, the head of the child is washed with hot water and soap, and a small scull cap of flannel put on. The body is then carefully washed with hot water and soap, and after being dried the umbilical cord is wrapped in a burnt or scorched rag on which butter is often smeared, and a flannel band is pinned round the child's body. If the head is much discoloured or distorted a little whisky is rubbed over it previous to putting on the flannel cap. The navel rag is invariably scorched before being used.

When the child is dressed, it either gets a teaspoonful of castor oil or a little syrup made of brown sugar and water, and, as a general rule, it is not put to the breast till the second or third day after birth, in fact not until the mother's breasts begin to get uneasy, being fed

at intervals of three or four hours with the above named syrup. Where medical men attend the child is put earlier to the breast.

With all classes it is known to be essential to the infant to keep it warm. The common practice, therefore, is to heat the child's feet at the fire during the time it is getting the castor oil or syrup, and then lay it in its mother's bosom, where it sleeps all night and every night until it is weaned.

With the upper classes it sleeps at night with the nurse or nurse-maid, or in a basinet or cradle in which is a flask of hot water.

Q. 2. Are the children suckled by the mother? For how many months? Do they get artificial food, and of what quantity and quality?

A. 80 to 85 per cent. of all children born are suckled by their own mothers. But where the mother has died, or is weakly and has not a sufficient supply of milk, as is too much the case with the upper classes, the child is brought up by a wet-nurse or on the bottle.

As a general rule, when the mother is healthy, no infant gets spoon meat till it is 9 months old or has cut its front teeth. The cutting the teeth is generally recognized as the period when it is safe to give artificial food; and the Scotch generally are aware that spoon meat given before that period is extremely apt to bring on convulsions. It is generally therefore withheld till nine months are completed, when the child is weaned, though, if it be winter, the weaning is delayed till spring, when the child will be from 12 to 14 months old. It is generally recognized that the healthiest children are those weaned at nine months complete. Prolonged nursing hurts both child and mother; in the child, causing a tendency to brain disease—probably through disordered digestion and nutrition—in the mother, causing a strong tendency to deafness and blindness.

It is a very singular fact, to which it is desirable that attention were paid, that in those districts of Scotland, viz., the highland and insular, where the mothers suckle their infants from fourteen to eighteen months, deaf-dumbness and blindness prevail to a very much larger extent among the people than in districts where nine and ten months is the usual limit of the nursing period.

When the children are weaned, or once or twice a-day during the last month they are being nursed (when weaned at nine or ten months), the infant gets gruel made from oatmeal, to which some milk is generally added. As the child advances in age the gruel is made thicker or more consistent till it becomes the *oatmeal porridge* on which all children are fed in Scotland.

Q. 3. Describe briefly the life of the baby at ages 6 and 12 months through the twenty-four hours. The hours of sleep, dressing, washing (with hot or cold water), food, drink, nursing in cradle or otherwise by mothers or maids, going out into the open air, or being shut up in bedrooms, physic, cruys, or spirits.

A. The infant generally sleeps all night in its mother's arms, suckling at its leisure. When the mother therefore rises in the morning, she leaves the child in the warm bed, or pushes it into the cradle—which is generally of wood or basket work, and raised from the floor on wooden rockers, where it sleeps till after breakfast. It is then washed in lukewarm water if the weather be cold or the child

very young, but in cold water if the child is above 6 months or it be summer. It is then dressed, is put again to the breast, and laid down in its cradle, where it is kept most of the day, only being raised occasionally to clean it or suckle it. Should the child be restless, advantage is taken of the rockers to rock the cradle, but not otherwise.

The child gets plenty of fresh air in the cradle, as the top of the cradle or its face is not covered over with an embroidered cloth, as is so much the custom in England.

80 per cent. of the children of Scotland, when infants, are rarely taken to the open air, unless to the door of the house, in the mother's arms. Regular airings are alone given to the children of the upper classes, who have nurses and nurse maids.

Excepting the dose of castor oil at birth (and this is not always given) the infant gets no drugs of any kind, if it be healthy, during all its nursing life. In the manufacturing districts, where the mother has to be absent all day at the manufactory, preparations of opium and whisky are largely used by the old women to whom is committed the care of the nursing infants, and artificial food is obliged to be given till the mother's return. The upper classes generally overdose their children with medicine.

Q. 4. Any other matter likely to influence the life, such as accumulation in hospitals, lodgings, &c.

A. I know of none for the majority of the people; and as to the criminal and absolutely destitute class, there is no difference between England and Scotland. Besides we have no hospitals for infants in Scotland.

Q. 5. Are children deserted, sent to hospital, or ill treated? Is infanticide uncommon?

A. Children under 1 year are very rarely deserted or ill-treated, and we have no hospitals to which they could be sent. The exceptions alone occur among the criminal class, and are so few as not to affect the general result.

Infanticide is very rare indeed. In fact a woman for the most part has no motive for infanticide in Scotland, *even with her illegitimate child*; for the birth of an illegitimate child is often the means of inducing the father to marry the woman, whereby the child is legitimized. This indeed is one of the great beauties of our Scottish law of legitimation, which even on moral and legal grounds ought to be introduced into England. It takes away the chief motive for child-murder, and does not visit on the innocent child the sins of its parents.

Remarks on Infants under 1 Year of Age in Scotland and in England.

When drawing up some notes on the subject, two years ago, the following tables were prepared; the year 1860 being chosen simply for the reason that it was then the last year for which the Registrar-General of Scotland had furnished us with the minute details of the ages and causes of death, and my time is so much occupied at present that I have no leisure to make the necessary researches for 1862, the year to which the Scottish Registrar-General has brought down his

publications. For all practical purposes, however, the one year answers as well as the other.

nfants under 1 Year in ENGLAND and in SCOTLAND, their chief Causes of Death, and the Proportion of Deaths from each Disease to the Total Infants Living.

England, 1860.			Scotland, 1860.		
Estimated Number of Infants under 1 Year of Age, on 30th June, 1860, 593,000.			Estimated Number of Infants, under 1 Year of Age, on 30th June, 1860, 90,057.		
Diseases.	Number of Deaths.	Proportion of Deaths to every 100 Living.	Diseases.	Number of Deaths.	Proportion of Deaths to every 100 Living.
Premature birth, } atrophy, debility }	26,636	4.49	Premature birth, } atrophy, debility }	2,990	3.32
Convulsions	20,796	3.50	Bronchitis	1,642	1.82
Pneumonia	9,871	1.66	Pneumonia	682	0.75
Bronchitis	6,886	1.16	Hooping cough	670	0.74
Diarrhœa	5,067	0.85	Hydrocephalus	643	0.71
Hooping cough	3,580	0.60	Convulsions	558	0.61
Hydrocephalus	2,650	0.44	Teething	501	0.55
Tabes Mesenterica	2,007	0.33	Small-pox	422	0.46
Teething	1,962	0.33	Enteritis	416	0.46
Measles	1,734	0.29	Measles	322	0.35
Scarlatina	1,082	0.18	Diarrhœa	248	0.27
Phthisis	935	0.15	Scarlatina	217	0.24
Thrush	881	0.14	Phthisis	211	0.23
Enteritis	869	0.14	Tabes Mesenterica	196	0.21
Small-pox	647	0.11	Croup	182	0.20
Croup	618	0.10	Cephalitis	56	0.06
Cephalitis	580	0.09	Thrush	27	0.03
Total under 1 year	100,984	17.03	Total under 1 year	13,413	14.89

To complete that table it might be stated that the “not specified causes of death” among infants under 1 year were 3,019 in England, and 1,811 in Scotland; giving a percentage to the living of 0.51 in England, and 2.01 in Scotland. It is right to mention, also, that these “not specified causes of death” in Scotland were almost all entered on the register as “bowel hives,” which in Scotland means enteritis, tabes mesenterica, and diarrhœa, so that the 1,811 deaths may be equally distributed among these three diseases.

Discarding all lesser differences in these tables, the striking fact appears, that it is *convulsions* which is the chief cause of the very high proportion of infantile deaths in England as compared with Scotland. Thus, in England 35 infants died from convulsions in every 1,000 infants living, but only 6 died in Scotland in every 1,000 from the same cause.

There is therefore something terribly faulty in the present mode of treating infants in England, and there is the most urgent neces-

sity for something being done to arrest this fearful waste of human life; for if the English mortality from convulsions were reduced to the Scottish standard, *seventeen thousand lives would be annually saved to England!* These 17,000 infants, who annually die in England from convulsions above the Scottish proportion, are truly lives wasted, and their deaths are truly preventible deaths; and the saving of these lives would of itself lower the *total mortality* of infants in England to that of Scotland.

The cause, however, is not far to seek; and the Statistical Society or any other society or association, would confer the greatest benefit on society were they to issue instructions, and distribute these widely among the people, as to how mothers should treat their babies.

There cannot be the slightest doubt that the very high mortality among the nursing children of England is, that they get spoon meat far too early in life, before the stomach of the tender babe can digest anything but the mother's milk. This is indeed the vital difference between the mode of feeding infants in Scotland and in England. As a general rule, no spoon meat of any kind is given to infants in Scotland until nine months from birth are expired, or until the child has cut its front teeth. On the other hand, we know it is almost the invariable practice in England to give spoon meat of some kind from the *third* month. At this time nature dictates that the child should still be suckled, because no teeth are provided, and that very fact indicates that no other food but the natural milk will agree. The stomach at that tender age cannot digest properly two kinds of food; the consequence is indigestion, terminating in convulsions, as the result of giving spoon meat, and is the reason why 35 infants die from convulsions in England in every 1,000 living, whereas only six die from the same cause in Scotland.

When practising as a physician in Edinburgh, I made many investigations into the causes of convulsions in infants, and in almost every case found that they were caused by spoon meat having been given, and that the tendency to the convulsions was removed by confining the infant to its mother's milk. From these researches I therefore concluded, that the six deaths annually from convulsions in every thousand infants in Scotland could be reduced one half, were the few mothers who do so imprudently feed their children with spoon meat to give up that practice. Even as it is, these six deaths chiefly occur among children whose mothers have died in child-birth, or who, from bad health or other causes, are unable to suckle their own children, and do not provide a wetnurse for the infant.

One other remark must be allowed, relative to the above table. In answering your second query I remarked on the greater tendency to deaf-dumbness and blindness in districts of country where the children were suckled too long. I ought also to have added, that the tendency to brain disease, generally, is increased by the same cause, and there is far less of over lactation in England than in Scotland, in consequence of the child being put at so much earlier an age on spoon meat; and the table appears to me to show the danger of over lactation to the child, inasmuch as while in England only 44 die from hydrocephalus in every 10,000 infants, 71 die from the same cause in Scotland.

Children of Age 1—5.

As to the other queries, relative to children above 1 year of age, and up to the conclusion of the fifth year, I cannot suppose there can be much difference between their general treatment in Scotland and in England.

Scottish children are for the most part fed during all the earlier years of their lives on oatmeal porridge. Oatmeal is the oat deprived of its outer husk and then roughly ground, leaving the oat in broken particles, but not reducing it to the state of flour; this is boiled in pure water, with a little salt, to the consistence of thick batter, and when so far cooled as to be ready for being eaten, the porridge is of the consistence of a pudding, and could be turned out of the dish into which it has been poured. This porridge forms the morning and evening meal of almost all children in Scotland; and it also forms the regular meal of the adults in all the country districts, though tea with bread and butter is fast displacing it in the towns.

The porridge is for the most part supped with butter-milk, when it can be had; as butter-milk is considered much more wholesome than sweet or skim-milk, and less liable to cause colic or convulsions to children. The Scotch have thus the same ideas as to this, as have the nomade Tartars and most inhabitants of warm countries. And they are undoubtedly right; seeing that butter-milk does not coagulate on the stomach, and form a great mass of indigestible curd, which sweet or skim-milk always does.

Vegetable broth, thickened with barley, and a piece of bread of some kind, forms the mid-day meal or dinner of the great mass of children in Scotland.

Illegitimate children are treated in every respect the same as legitimate children. It must be understood, however, that illegitimate children are quite confined to the lower classes, and scarcely ever occur among the middle or upper classes of society.

Vaccination was greatly neglected in Scotland till our late Act made it imperative. Nearly all are now vaccinated within three months of birth.

As a general rule, no drugs of any kind are given to children, excepting under medical direction when they are ill, and, excepting with the criminal class, they never taste spirituous liquors of any kind.

There is a just prejudice also against commencing the education of any child till it is 6 years old, excepting always what it may pick up from its mother or older children. It is found in practice, too, that early training only damages the physical and mental capacities of a child, so that, however great a prodigy it may be in infantile life, it falls behind its compeers as life advances. My own firm conviction is, that nothing mental should be attempted with a child till 7 years old, excepting what is given as mere general training at home and in the way of pure amusement.

The dress of all infants in Scotland, under 5 years of age, is essentially the same as in England, and is the same with all classes, viz., *short petticoats*.

Some of the better classes make these short petticoats in the form of the highland kilt, but this does not alter its nature.

As to the kilt itself, as a dress for boys, if we allow the boys who wear it to bear witness regarding it, there is no costume which approaches it for comfort, or which gives more freedom to the motions. All boys who have worn it say that it is much warmer than trowsers, even in the severest weather; and so long as my own boys wore kilts nothing would induce them to put on trowsers, as they asserted the kilt was so much warmer a clothing for winter, and so much cooler a covering for summer, while it did not hamper their motion as trowsers did. In fact, all boys whom I have known to wear the kilt side with the late General Stewart, of the 42nd Highlanders, who defended the highland costume as the very best for soldiers in all climates. It is neither more nor less than the old Roman dress; and the wretched modern imitations, to suit our squeamish notions of propriety, the French Zouave costume and the English knickerbockers, can never compare with it in anything.

P.S. During infancy the children in Scotland are not bandaged in any way so as to prevent the free motion of the limbs; and about the weaning period (nine months), the infant is encouraged to use its limbs, by being often laid down on the floor, and allowed to sprawl about till able perfectly to walk.

With the great majority of children, from the moment the child is able to walk it spends most of the day in the open air, about the doors of the street or close if in the town, about the doors of the cottage if in the country, those a little older taking the charge of the younger ones, the mother now and then seeing that they are not about some mischief.

Excepting among the better classes of a few of the large towns, *in former days*, few children had shoes or stockings till they went to school. Of late years, we have been closely imitating the English practice in our towns, and clothing the feet of our infants; but even yet, in all our rural districts, which embrace more than a half of the population, and at least half the population of our towns, that is to say, in from 75 to 80 per cent. of all the infants, no shoes or stockings are put on till the child goes to school or to service, and often not even then, excepting during winter. This practice is not found to injure the child in any way, but rather to conduce to health and vigour; and, strange as it may appear, those children who wear no shoes or stockings suffer less from chilblains than those who wear both stockings and shoes. The sole of the foot, also, becomes so hardened and insensible, as, compared with a covered foot, that the inequalities of the road do not hurt the foot, and the children walk with a lightness, firmness of step, and freedom of carriage greatly superior to those wearing shoes.

NORWAY.

By PROFESSOR ASCHOUG, of *Christiania*.

The nourishment of Norwegian children varies greatly among different classes and in different localities. In the families of the higher classes it differs little from that used everywhere in the north

of Europe. But their number is insignificant in comparison with the great mass of our population, the peasant proprietors and the labourers. It is upon these classes the average rate of mortality depends. The diet of the children belonging to these classes is everywhere most simple and frugal. In the first year of their life they are suckled by their mother; and in the poorest families it is not uncommon, although by no means a general custom, that the mothers continue to suckle the child until two or three years' old. The reason they assign is, that it diminishes the number of children; often it is only sheer want, that forces them to choose this manner of nourishing their children, as the cheapest; afterwards the children must partake of the common fare, potatoes, cakes and porridge made from oatmeal or bigg, and coffee, generally without sugar. In the interior, pork and dried and salted meat is used according to the means of the household, but everywhere, except among the richer peasants, in small quantities. On the coast, fish, fresh or salted, enters into the daily consumption as one of the principal means of subsistence. It is however often badly prepared, and tainted. The state of horticulture is very low, and the vegetables of the garden are little used. Especially it is to be remarked that the Norwegians consume less legumina than any other people of the north and middle of Europe. The redeeming feature of their diet is, that they have considerable quantities of milk for their consumption. To a population of 1,700,000 we have 800,000 horned cattle; these cattle are certainly poorly fed, in winter time often half-starved; they produce little meat, and, in comparison with the cattle of other countries, even little milk. In the average you can scarcely reckon more than 200 gallons a-year from every cow. But of the 265,000 households in the rural districts, you may safely say that 180,000 each possess at least one cow, and among the poorer people the milk is almost wholly consumed in the household, chiefly in its natural state or as butter. Of the food at hand, the children partake indifferently, without regard to their age. I never heard that people of the lower orders consider any kind of food unhealthy for their children; they only think of satisfying their hunger. Especially I do not believe that the children get more than their share of the milk. They are generally scantily fed, and by no means ruddy complexioned or robust looking. My impression is, that the low rate of mortality has very little to do with their diet, and this opinion coincides with what I have heard from the medical chief himself, and other gentlemen, with whom I have discussed your question. But the conditions under which the great mass of our population live, are in several respects very different from those of other people.

1. The characteristic feature of our climate is its low temperature; this seems to be favourable to the vitality of every species of animals able to live here at all. Our horned cattle are a most hardy race, free from a great many maladies that decimate the stocks of other countries. Our horses are full of vigour at an age in which the common horses of the middle of Europe are decrepid. The length of human life decreases, however, sensibly north of the polar circle, and is in Finmarken considerably below the average. Whether the

climate is wet or dry, does not seem to exercise great influence on the rate of mortality. It is nearly as low on the sandy plains of Jaderen, south of Havanger, that are drenched by the rains of the Atlantic, as in Gudbranddalen and Okerdalen, where the climate is very dry.

2. Of our whole population in 1855, 1,490,000, only 198,000 lived in cities and towns. The rural population does not live in villages as in the middle of Europe and Denmark and Sweden, but in detached farms and cottages.

3. Our houses are almost all made of wood. They are often built upon dry rocks, and even when built upon earth they are generally provided with foundations of stone. They have always floors of planks. They are accordingly seldom damp, at least not in comparison with the hovels inhabited by the lower orders in other countries.

4. Norway is properly speaking a single enormous rock of the hardest formation, generally gneiss and granite. The fissures filled with earth are few and small. The land under tillage is not more than $\frac{1}{100}$ of the whole area. The proportion of its surface capable of absorbing wet and generating miasmas is certainly less than in any other European country. Low marshy ground of large extent is almost unknown.

SWEDEN.

By DR. BERG, Director of Statistical Department.

The Swedish women are generally very fond of their babies. The rule is, that the mother in all classes of society suckles her infants. Very often the peasant women prolong the suckling two to three years. Only in the higher classes and in the towns are wetnurses employed in the case of inability of the mother. A very remarkable exception must be noticed. Since the first results of our statistics of population have been known, in the middle of the last century, the great mortality among the infants 0—1 attracted attention. The rate of mortality was higher in the province of Finland named Osterbotten than elsewhere, and it was proved that this high rate of mortality amongst infants of the peasant women was owing to the custom which prevails of not suckling the babies, but suspending a horn filled with sour milk over the cradle for their nourishment, as the mothers are obliged to work in the fields or woods at a great distance from home. To counteract this habit and its deplorable effects, a tract was published in 1755, "On the Nursing of Infants," and distributed amongst the inhabitants. Models of the construction named "*wattje*," used by the Lappons for transporting their babies on the back of the mother, were also distributed to the parishes, with the view of preventing the suffocation of infants placed in the same bed as their parents. At the same time a royal edict prescribed a fine of 10 dollars for mothers who by neglecting to suckle their babies for at least half a-year had caused the death of the children. I do not know what was the effect of these measures, but traces of the bad habit are still to be found in the same region of Finland, and particularly in the province of Weiterbotten, opposite to Osterbotten, on the other side of the Baltic. In Sweden, I am sure it is the exception and not the rule. Cow milk, together

with the mother's, is of frequent use; and when the suckling is prolonged to the third year, as is very often the case in the country, the babies run after the mother, ask her to kneel down, and suckle standing before her, they naturally eating also all other kinds of food.

Formerly, there was also a bad habit of giving brandy to the babies to silence them, through a notion that the effect was not injurious. The use of cradles which can be moved is general; but in our foundling hospital bedsteads of iron are introduced, without any movement.

Three public schools of midwifery are in activity, and the majority of parishes have their own midwives, spreading the rules established in the schools. The new-born child having been bathed or washed with lukewarm water and clothed, is placed first at the mother's side, and very soon allowed to suckle her. Later the cradle or a bed at the side of the mother's receives the child. The habit of giving them some laxative is discountenanced, but is still in use. The clothing for the most part is linen or cotton; temperature of the room, generally too high; cover of the bed, warm. When the whole family is often living in the same room, the air cannot be fresh; the nursery of the upper classes is also very seldom the largest and best room of the flat. Double windows, much in use here through six or seven months of the year, are not favourable to health, but we can scarcely be without them; for the ice would then cover the inside of the single window in rooms where the air is so humid as it is in the nursery. For the most part the infants pass seven or eight months of winter indoors, which cannot be favourable, when there is not sufficient ventilation.

About one-tenth of living born infants being illegitimate, this high proportion exercises a considerable influence on the mortality. Great numbers of the illegitimate cared for by the directory for the poor and paid for at fostermothers, or in Stockholm received for some time as inmates in the foundling hospital, are soon lost. From amongst the mothers of this class are generally chosen the wet-nurses, whose general character is much better than it would be supposed. For the most part they are female servants, and after their fall returning as wetnurses in a good family, they are very often rivals with the mother in their cares. After suckling they often stand as drynurses, fondly attached to the children. The mean time for suckling may be about ten months. The nutriment most employed after weaning is a pap prepared by boiling milk with wheat meal, after which small-beer and syrup are added. About the diseases of infants many prejudices trouble the medical men. The women regard thrush as inevitable, so calling the white flocks of excessive caseine in the excrements, treating them with infusion of rhubarb without sending for the doctor. Crusta lactea is regarded as a benefit—a *noli tangere*. Diarrhœa at the period of teething is very often considered as prophylactic against convulsions, and is in consequence too often neglected. Every disease with want of appetite, amaigrissement, morositas, is referred to some disease called *altå*, or *skarfin rifet*, and presumed to be a secret from medical men, but well known to some old women, who are reputed to cure it by

anointing the stomach with a composition in great part of tar and garlic, or by amulets. They are ashamed to confess to the doctors that such means have been employed. In the better classes, where every family has a doctor, the female practice is of very little consequence, but in the country the doctors are few.

We have no observations calculated for the different classes of society, because the differences of the classes are not really so great. We have nobles in all occupations of life; we have no manufacturing districts comparable with the English or those of other countries; but the difference between the town, especially the large town, and the country population, has an important effect on the mortality of children. The influence of zymotic diseases seems to afford as great variability of the rate of mortality in the towns as in the country. I give you specimens of mortality from Stockholm, where the contagious diseases have a good soil, and where the great number of illegitimate children (about 40 per cent.) must augment the mortality; also from the Isle of Gothland, and from the province of Jemtland, both the most isolated provinces. But it is to be remarked that our peninsula has in the last years been severely visited by scarlatina, measles, and diphtheria. There is also in different places a great variation in the absolute number of the classes of different ages and the influence of this difference is very great on the population of Stockholm, composed to a considerable extent of a number of immigrants above 15 years. For the mortality in the whole of Sweden see the table of mortality and the diagram in the Report for 1856-60, A. II, 3. On the diagram No. 2, the mortality is marked by asterisks; but it must be observed that the first asterisk is erroneously placed, and may be corrected to 8,565 entering in the second year.

Amongst the causes of death the suffocation of infants sleeping in the same bed as the mother or wetnurse has attracted much attention. One of the reasons for recommending the use of the so called "wattje," a kind of basket made of twigs, was to prevent the mother from laying the baby close to her side and pressing it when falling asleep. Now it is well known that spasms glottides greatly augments the number referred to sudden deaths, which are reported still to be about 160 a-year. In the years 1861-63 together, we have lost in Sweden 4,461 from scarlatina, 10,441 from measles, and 7,607 from diphtheria and croup consisting principally of children from 2 to 9 years. About 100 children a-year are burned and scalded by faults of the mothers leaving them alone near to fire or boiling fluid, &c. About 200 children a-year are drowned, for the most part from carelessness when going in boats, or bathing, or on the ice.

FRANCE.

By M. LEGOYT, *Chief of Statistical Department in the Ministry of Agriculture, Commerce and Public Works.*

Traitement des Enfants en bas Ages.

Il continue à être déplorable, surtout dans les campagnes. Les femmes s'y occupant des travaux des champs, presque autant que

les hommes, et, par conséquent, étant obligées de faire de longues absences, non-seulement *emmaillotent* leurs enfans, mais encore les attachent à leurs berceaux, de manière à leur interdire tout mouvement.

Les sages-femmes *sorties des écoles d'accouchement*, combattent vainement cette pratique barbare; leur influence dans ce sens a été à peu près nulle jusqu'à ce jour, *l'intérêt des parens* paralysant toute tentative de réforme.

Mais ce n'est pas là la cause principale de la mortalité considérable de nos petits enfans, on peut encore l'expliquer par les faits ci-après :

Un très-grand nombre d'enfans des villes ne sont pas nourris par leurs mères, mais bien par des nourrices des campagnes qui donnent de préférence leur lait à leur propre enfant et font avaler de très-bonne heure à leur nourrisson d'affreuses *bouillies* que leur estomac et leurs intestins ne peuvent digérer. De là des inflammations auxquelles un grand nombre succombe. Ces enfans ne sont, d'ailleurs, l'objet d'aucun soin de propreté; ils croupissent dans leurs ordures, ne sont que très-rarement lavés et changent plus rarement encore de linge. En cas de maladie, le médecin n'est le plus souvent appelé (je parle toujours des enfans élevés dans les campagnes) qu'à la dernière extrémité, et presque toujours trop tard. Sous ce rapport, et le nourrisson et l'enfant de la nourrice sont soumis au même et déplorable régime.

Joignez à cela que les habitations de la plupart de nos paysans sont malsaines, que le jour et l'air n'y pénètrent que difficilement, que les lits, fermés par d'épais rideaux, ne sont presque jamais ventilés; que les planchers sont souvent en terre battue, et, par suite, les chambres froides et humides, condition déplorable quand les enfans sont atteints de fièvres éruptives. Enfin, les fumiers et les *mares* destinées à l'abreuvement des bestiaux sont le plus souvent dans l'extrême voisinage de l'habitation, où il n'est pas rare, en outre, de trouver confondus les hommes et les animaux. Cet état de choses domine surtout dans nos départemens du centre et de l'ouest, où l'aisance a encore le moins pénétré.

Non-seulement, dans nos campagnes, le médecin est rarement appelé en cas de maladie des enfans (et des adultes également), mais il est rare que le *traitement* (surtout s'il est coûteux) et le *régime* soient suivis. Quoique malades, les enfans continuent à être nourris comme par le passé : un lait insuffisant et de la bouillie s'ils ne sont pas encore sevrés; une mauvaise soupe, du pain noir et dur, et des fruits verts ou gâtés. J'ai vu quelquefois des enfans atteints de la rougeole, et dans le paroxysme de l'éruption, exposés, dans la cour de l'habitation, à la pluie et aux vents, et mangeant de ces abominables fruits.

Les prétentions des nourrices augmentant sans relâche, beaucoup de mères de famille qui ne peuvent plus faire nourrir leurs enfans dans les campagnes, se décident, si elles n'ont pas de lait, ou si elles sont obligées d'aller travailler au dehors, à recourir au *biberon*, c'est à dire, au lait de vache; or il est d'expérience commune que *les trois quarts* des enfans ainsi nourris, succombent en peu de temps.

C'est parce que *les administrations hospitalières, en France*, ne

trouvent plus de nourrices, que leur enlève la concurrence des familles aisées des villes, qu'elles sont obligées de faire nourrir au biberon un grand nombre des 30,000 enfans trouvés ou abandonnés qu'elles recueillent tous les ans; or la mortalité de ces malheureux petits êtres est de plus de moitié! . . . Elle n'est que de 29 p.c. pour les enfans pauvres que leurs mères consentent à garder et à nourrir elles-mêmes, moyennant un secours annuel.

Enfin, nous avons, en France, un grand nombre de naissances illégitimes (quoique beaucoup moins cependant que dans d'autres Etats Européens); eh bien! les enfans mis au monde dans cette triste condition, ont une bien moindre viabilité que les légitimes, soit parce qu'ils apportent en naissant le germe de maladies graves, fruit ou des désordres ou des privations de la mère, ou de ses tentatives d'avortement; soit parce qu'ils manquent des soins qu'exige leur faiblesse, les mères appartenant, pour la plupart, aux classes les moins aisées de la société, *et étant généralement abandonnées par les séducteurs*, lâcheté qu'encourage notre législation civile en interdisant la recherche de la paternité.

Voilà, mon cher Farr, les seuls renseignemens que je puisse vous donner, au courant de la plume, et sans y avoir suffisamment songé, sur les principales causes de la mortalité enfantine en France.

Cette mortalité qui est, d'ailleurs, en voie de diminution, est d'autant plus sensible en France, que la fécondité générale de notre population est de plus en plus faible et qu'elle ne s'accroîtra bientôt plus. Dans cinquante ans, si l'état actuel des choses continue, elle sera peut-être stationnaire.

Actes d'Adoption soumis à l'Homologation des Cours Impériales.

Années.	Actes d'Adoption soumis à l'Homologation des Cours Impériales et sur lesquels sont Intervenues des Arrêts.			Sexe des Adoptants.			Profession des Adoptans.			
	D'il y a Lieu.	De non Lieu.	Total.	Hommes.	Femmes.	Deux Epoux conjointe- ment.	Proprié- taires, Rentiers, Profes- sions Libérales.	Commen- çants.	Autres Profes- sions.	Professions non indiquées.
1861....	114	8	122	45	43	34	66	14	29	13
'62....	127	2	129	49	60	20	66	11	20	32
'63....	97	4	101	41	48	12	58	15	20	8

Années.	Sexe des Adoptés.			Motifs de l'Adoption.				
				Degré de Parenté existant entre l'Adoptant et l'Adopté.				
				Adoption.				
	Hommes.	Femmes.	Total.	D'Enfants Naturels des Adoptans ou de l'un d'eux.		De Neveux et Nièces.	D'autres Parents ou Alliés.	D'autres Personnes.
				Reconnus.	Non Reconnus.			
1861....	69	56	125	22	24	18	9	52
'62....	65	72	137	34	26	11	7	59
'63....	59	47	106	25	24	10	3	44

AUSTRIA.

By DR. HERZ, Assistant Physician to the Vienna Foundling Institution.

In general, it must be mentioned, that the wide differences in the social position of parents influence the education and the principles therein employed in no smaller degree here than in your country, so that the higher classes follow a more or less rational way in bringing up their children; whilst in the lower classes it is very badly done, partly on account of ignorance, and partly on account of the poverty of the people. Some difference also exists in the management of town children and those in the country; the former being, on the whole, better managed, on account of the higher intelligence of the town inhabitants; whilst, again, these advantages may be somewhat counterbalanced by the residence in the crowded, and therefore unhealthy, towns. I am very sorry that time does not permit me to collect some details on this subject, but I feel sure that the difference of these conditions in England and in this country would not be a very wide one.

You may be aware that the obstetrical practice in this country, as almost in all Germany, is in the hands of midwives (*Hebammen*), medical men are only sent for in somewhat severe and complicated cases. These females, before being permitted to practice, have to attend a theoretical-practical course of lectures, lasting half a-year, in one of the public obstetrical schools, and to undergo a strict examination. In spite of these measures the midwives prove to be a principal source of many abuses, fibs and superstitious customs regarding children. These midwives are also in the possession of the most wonderful nostrums; they cure the newborn, and like especially to purge them, even to death; and I do not exaggerate in stating that many hundreds of children die annually in this country by the perverse means of these female doctors.

The majority of our children are suckled, a small part of them by their own mothers, a greater part in Vienna by wetnurses. In the better ranks of society it is now a common practice for the mother not to suckle her own offspring, while of course the wife of the working man is prevented from fulfilling this maternal duty by the necessity of working for her livelihood out of doors. The former hire wetnurses, the latter feed their babies artificially.

With regard to wetnursing we do not send our children to the country, as they do at Paris and in other towns of France, but we take the wetnurse as a kind of servant to our house. The public foundling institutions of the metropolis and of other provincial towns procure, for private families, trustworthy wetnurses, whom the medical officer of the day, after a thorough and repeated examination has found and testified to be quite healthy and fit for that task. The family in want of such an individual pays a certain sum to the institution (for Vienna it is about 3*l.*, in other places half of that), and may choose the wetnurse they would like best. In order not to be misunderstood, I must add, that only unmarried females are received in our public lying-in hospitals, where they are delivered and their children are cared for in the foundling institutions, quite free

of expense, until they attain their seventh year. These females have, however, if they are fit, to remain for a certain time at the foundling institution, where they suckle, besides their own children, some other, weak or sick one, whose mother has not been found fit for this task. If they do not wish to enter private houses as wetnurses, they are dismissed after about three months' time.

The babies are generally suckled for six to nine months, or even a year, and I know also cases in which foolish mothers suckle them for two or three years; in most houses the children do not get any other food during this period, in other families the children are accustomed to soup, or rather beef-tea, light milk diet, &c., besides the breast milk, and then get exclusively the above-mentioned articles of food.

With regard to artificial feeding of children, much *peccatur extra muros et intra*. The better classes, it is true, by the directions of their medical advisers, give to their babies an equal and nourishing food, consisting mainly of cow milk, arrowroot cooked in milk, &c.; in the lower classes, they give to them different stuff *pêle-mêle*, and, as I know from my experience in the children's hospitals of this town, sugar-water and the different medical tea-sorts play a most important part amongst these dietetics. This part of popular knowledge is dreadfully neglected amongst the lower ranks; and, from my own experience, I must certify that the majority of diarrhœas, so frequent and so fatal during the first period of life, are chiefly caused by the neglect of the elements of hygiene. In the later periods of childhood, also, no care is taken regarding a somewhat rational selection of the food, and everything the grown up people eat, is also thought fit for the children, and even babies. So, in many country districts, where brandy and strong liquors are much in use, the children, and even the youngest ones, get spirits, of course not to the advantage of their health. I may, however, be permitted to mention that opiates for quieting restless children are very little used by the parents, or at least not nearly as frequently as it is done (according to official reports), in some parts of England; sometimes only, *syr. papav.* or *syr. diarolii* is bought here by the mothers for that purpose. One of the greatest blessings for the lower, and especially for the labouring, classes, proves to be the "Crèches," erected and supported chiefly by voluntary subscriptions, in large and industrial towns; the children are received during the day time, and kept and boarded for a trifling payment (about $\frac{1}{2}$ d.—*id.* a-day). Our city has now eight such places, where several hundred children are daily received. Of the highest utility are our childrens' hospitals (for Vienna, we have two large ones), not only for the care and comfort the sick ones find there, but especially because the parents are instructed how best to treat and keep their healthy offspring. Of an equal importance is a third kind of institution, I would call them dispensaries for diseases of children ("Oeffentliche Kinder-Kranken Institute"). There are now six or seven in Vienna, where the sick children get medical advice and the drugs gratis (at the public expense).

The dress of our babies consists generally of a knitted light cap, a linen shirt extending down to the knees, and over that a short

jacket of linen or wool. Sometimes a small handkerchief is also bound round the neck and a part of the chest, the knot of which, injudiciously enough, is often to be found on the back, so that the babies are much molested by it in lying. The feet and thighs are wrapped up in swaddling clothes, but generally babies are kept tolerably loose, and the bands of former times are (with some exceptions in country districts) no longer in general use. When the children are taken into the fresh air, to which many of the lower classes have still an unconquerable objection, this dress is, of course, modified according to the weather and the time of the year. For the elder children the so-called Scotch fashion, to have a good deal of the thighs quite naked, has of late somewhat extended. The throat and neck are pretty generally uncovered, and all the clothes more loose than they were before.

The warming of babies is generally effected by artificially warming the linen before it is used; in the country, feather beds are mostly to be found, in towns light covers are in general use. When a higher degree of warmth is needed, as in cases of premature or sick children, one or two earthen bottles, filled with boiling water and carefully covered, are put into the bed of the child. Cradles are still in use in the country, in town their place is supplied either by baskets or small beds. The warming of the nursery is effected by stoves, as fire-places are almost unknown in this country. Separate nurseries are only to be found amongst the higher class, and then the furniture is of course appropriate to the purpose for which they are used. In former times almost every family had a so-called walking chair (*gehstuhl*), by means of which the child might become accustomed to walk, they were of no small inconvenience to the little ones; something better and more comfortable is another kind of invention for the same purpose, the so-called walking machine; perambulators are not in general use. In the lower classes nurseries do not exist, they all occupy the same rooms—very often only one.

The children are washed during the first year of life every day, and also after that time several times a week. The cases in which the children are washed daily only as long as the midwife attends the mother are rather exceptional, but still they exist.

APPENDIX.

TABLE I.—*Population, Area in Hectars, and Density of Population in some of the Principal States, arranged in the Order indicated by Density.*

European States.	Population.		Area in Hectars.	Density. Hectars to a Person.
	Persons.	Dates of Enumerated Population.		
Norway	1,490,047	31st December, 1855	31,831,863	21'36
United States of America*..... }	31,134,666	1860	440,435,975	14'15
Sweden	3,859,728	31st December, 1860	39,924,155	10'34
Spain	15,673,481	25th „ '60	50,703,600	3'24
Denmark.....	2,536,868	Mean 1855 and 1860	5,837,525	2'30
Austria	37,450,883	31st October, 1857	66,518,151	1'78
Prussia	18,004,552	Mean 1858 and 1861	28,954,822	1'61
France.....	36,699,491	„ 1856 „ 1861	54,239,679	1'48
Italy	22,047,034	{ Estimated to middle of 1863 }	25,932,031	1'18
Netherlands	3,293,577	31st December, 1859	3,283,997	1'00
England	18,996,916	Mean 1851 and 1861	15,104,299	•80
Belgium	4,529,560	31st December, 1856	2,945,539	•65

* Exclusive of the Territories, containing a population in 1860 of 295,225, on an area of 289,895,074 hectars.

TABLE II.—*Population at all Ages, Number of Births, and Proportion of Births, Order indicated by the Birth-*

1	2	3	4	5
European States.	Population (All Ages).			
	Both Sexes.	Males.	Females.	Date.
Italy	22,047,034	11,033,245	11,013,789	{ Estimated to middle of 1863
Prussia	18,004,552	8,913,698	9,090,854	
Spain	15,673,481	7,765,508	7,907,973	Mean 1858 and 1861
Austria	37,450,883	18,684,241	18,766,642	25th December, 1860
England	18,996,916	9,278,742	9,718,174	31st October, 1857
Netherlands	3,293,577	1,616,357	1,677,220	Mean 1851 and 1861
Denmark.....	2,536,868	1,262,833	1,274,035	31st December, 1859
Sweden	3,859,728	1,874,399	1,985,329	Mean 1855 and 1860
Norway	1,490,047	729,905	760,142	31st December, 1860
Belgium	4,529,560	2,271,783	2,257,777	" '55
France	36,699,491	18,251,357	18,448,134	" '56
				Mean 1856 and 1861

TABLE III.—*Annual Rate of Mortality among Children under 5 Years of Age, in the Principal States of Europe.*

States.	Children Living Aged 0—5 Years.	Dates to which the Population Refers.	Deaths of Children Aged 0—5 Years (Exclusive of Still-born).	Years in which the Deaths occurred.	Average Annual Rate of Mortality per Cent.
Norway ...	201,535	31st Dec., 1855	82,327	10 years 1851—60	4'09
Sweden	513,541	" '60	52,841	2 " '60—61	5'14
Denmark	330,125	{ Mean 1855 and 1860 }	87,050	5 " '55—59	5'27
England	2,524,444	{ Mean 1851 and 1861 }	1,706,583	10 " '51—60	6'76
Belgium	488,467	31st Dec., 1856	365,830	10 " '51—60	7'49
France ...	3,525,449	{ Mean 1856 and 1861 }	1,396,372	5 " '56—60	7'92
Prussia	2,704,073	{ Mean 1858 and 1861 }	668,426	3 " '59—61	8'24
Holland...	401,198	31st Dec., 1859	146,323	4 " '58—61	9'12
Austria ...	4,783,881	31st Oct., '57	995,000	2 " '56—57	10'40
Spain	1,883,818	25th Dec., '60	1,052,196	5 " '58—62	11'17
Italy	2,992,307	{ Estimated to middle of 1863 }	339,596	1 " '63	11'35

Note to TABLE IV.—The numbers in this table are only approximative. If the births of a country, as well as the deaths, were all registered, and if furthermore they were every year equal, or equal on an average of years, then several of these numbers would be rigorously exact. They are also correct if the proportions of births and of deaths unregistered are equal. For let B = annual births, and

$$D = \text{annual deaths of children under 5 years of age, then } \frac{B - D}{B} = p = 1 - \frac{D}{B} =$$

to 100 Persons Living in some of the Principal European States, arranged in the rate in Cols. 10 and 13.

Births (Exclusive of Still-born).				Proportional Number of Births to			Persons Living to One Birth.
Years in which Births were Registered.	Both Sexes.	Males.	Females.	100 Persons Living.	100 Males Living.	100 Females Living.	
1 year 1863	862,390	443,700	418,690	3'91	4'02	3'80	25'6
3 years 1859-61	2,108,027	1,078,680	1,029,347	3'90	4'03	3'77	25'6
5 " '58-62	2,897,259	—	—	3'70	—	—	27'0
2 " '56-57	2,742,698	1,412,838	1,329,860	3'66	3'78	3'54	27'3
10 " '51-60	6,471,650	3,308,792	3,162,858	3'41	3'57	3'25	29'3
4 " '58-61	446,943	229,702	217,241	3'39	3'55	3'24	29'5
5 " '55-59	428,365	220,652	207,713	3'38	3'49	3'26	29'6
2 " '60-61	259,796	132,614	127,182	3'37	3'54	3'20	29'7
10 " '51-60	492,301	252,379	239,922	3'30	3'46	3'16	30'3
10 " '51-60	1,371,197	702,983	668,214	3'03	3'09	2'96	33'0
5 " '56-60	4,836,939	2,478,961	2,357,978	2'64	2'72	2'56	37'9

TABLE IV.—To 1,000,000 Living Births, the Proportional Number of Children Living to 5 Years of Age, and Dying UNDER 5 Years of Age in the different European States.

European States, &c.	Children Living to 5 Years of Age.	Children Dying under 5 Years of Age.	Excess of Children's Deaths over those in Norway.
Norway	832,765	167,235	—
Denmark	796,788	203,212	35,977
Sweden	796,613	203,387	36,152
England	736,298	263,702	96,467
Belgium	733,227	266,773	99,538
France	711,317	288,683	121,448
Prussia	682,922	317,078	149,843
Netherlands	672,614	327,386	160,151
Austria	637,219	362,781	195,546
Spain	636,834	363,166	195,931
Russia	623,736	376,264	209,029
Italy	606,222	393,778	226,543
63 healthy districts of Eng- land	822,553	177,447	10,212
30 large town districts of England	644,521	355,479	188,244
United States*	819,136	180,864	13,629

* The results for the United States are deduced from the population under 1 year, which has been assumed to represent the total births and the deaths under 5 years of age. By this method the births are probably understated, but it is equally probable that the deaths also are understated.

TABLE V.—*Population, Deaths, and Average Annual Rate of Mortality per Cent. States, arranged in the Order indicated*

1 European States.	2 3 4 Children of the Age		
	Population (0—5).		
	Males.	Females.	Dates of Enumerated Population.
Norway	102,698	98,837	31st December, 1855
Sweden	258,786	254,755	" " '60
Denmark	167,032	163,093	Mean 1855 and 1860
England	1,265,830	1,258,614	" 1851 " 1860
Belgium	244,788	243,679	31st December, 1856
France	1,782,614	1,742,835	Mean 1856 and 1861
Prussia	1,360,134	1,343,939	" 1858 " 1861
Netherlands	201,839	199,359	31st December, 1859
Austria	2,406,627	2,377,254	31st October, '57
Spain	958,974	924,844	25th December, '60
Italy	1,511,035	1,481,272	Estimated to middle of 1863

TABLE VI.—*Mortality of Children of the Age 0 and under 5, in HEALTHY and in Rate of Mortality per Cent. in Thirty Large Town Districts in the Ten Years*

	Children of the			
	Population.			Date of Enumerated Population.
	Both Sexes.	Males.	Females.	
In 30 large town districts....	335,809	167,980	167,829	Mean 1851 and 1861
„ 63 healthy districts	130,635	65,700	64,935	1851

Note to TABLE IV—*contd.*—

probability that a child born alive will live five years. Now let $B' =$ births registered $= \beta B$; and $D' = \delta D =$ deaths registered under five years of age; then the probability of survival deduced by this method from registered births and registered deaths is expressed by the equation—

$$p = 1 - \frac{\delta D}{\beta B}.$$

But if $\delta = \beta$, this becomes $p = 1 - \frac{D}{B}$. If $\beta > \delta$ then $1 - \frac{\delta D}{\beta B} > 1 - \frac{D}{B}$, or

the probability of survival is too high by this method; and conversely if $\delta > \beta$ then the probability of survival by this method is too low. In other words, when the deficiency in the registration of births is less than the deficiency in the registration of deaths, the probability of survivorship comes out too high; and conversely, when the deficiency in the registration of deaths is less, proportionately, than the deficiency in the registration of births, the probability of survivorship comes out too low. Thus, let the actual annual births be $B = 1000$; and the actual annual deaths under 5 years of age be 400; then the probability of survivorship will be $\cdot 6$; but if $\cdot 8 B$ and $\cdot 6 D$ are registered, we shall have

$$p' = 1 - \frac{\cdot 6 D}{\cdot 8 B} = 1 - \frac{\cdot 6 \times 400}{\cdot 8 \times 1,000} = 1 - \frac{24}{80} = 1 - \cdot 3 = \cdot 7 > p = \cdot 6.$$

And conversely $p' = 1 - \frac{\cdot 8 \times 400}{\cdot 6 \times 1,000} = \cdot 467 < p = \cdot 6$.

Here the probability of survivorship is understated, because the proportion of births omitted exceeds the proportion of deaths omitted in the register.

As the registration of births is not enforced by penalty in England, it might

of Children of the Age 0 and under 5 Years in some of the Principal European by the Mortality in Cols. 8 and 9.

5 0 and under 5 Years.					1 European States.	
Deaths (0—5) (Exclusive of Still-born).			Average Annual Rate of Mortality per Cent.			
Years in which Deaths occurred.	Males.	Females.	Males.	Females.		
10 years 1851-60	44,401	37,926	4·32	3·84	Norway	
2 " '60-61	28,378	24,463	5·48	4·80	Sweden	
5 " '55-59	46,968	40,082	5·62	4·91	Denmark	
10 " '51-60	916,882	789,701	7·24	6·27	England	
10 " '51-60	195,716	170,114	8·00	6·98	Belgium	
5 " '56-60	746,203	650,169	8·37	7·46	France	
3 " '59-61	356,023	312,403	8·73	7·75	Prussia	
4 " '58-61	77,933	68,390	9·65	8·58	Netherlands	
2 " '56-57	534,003	460,997	11·09	9·70	Austria	
5 " '58-62	—	—	—	—	Spain	
1 year 1863	180,557	159,039	11·95	10·74	Italy	

UNHEALTHY DISTRICTS of ENGLAND. *Population, Deaths, and Average Annual 1851-60, and in Sixty-three Healthy Districts, in the Five Years 1849-53.*

Age 0—5.

Deaths.				Average Annual Rate of Mortality per Cent.		
Years of Deaths.	Both Sexes.	Males.	Females.	Both Sexes.	Males.	Females.
10 years 1851-60	338,990	179,837	159,153	10·09	10·71	9·48
5 " '49-53	26,361	14,282	12,079	4·04	4·35	3·72

be presumed that the probability of survivorship is somewhat understated for this country by the method here employed; but the error is counteracted by another in an opposite direction.

The effect of an increase of the annual births will be seen by referring to the previous paper, where an exacter method is described; that method being inapplicable in the greater number of States from the want of adequate data.

Let B_0, B_1, B_2, B_3, B_4 be the annual number of births in 5 years, increasing in the ratio of 1 to r , so that $B_1 = rB_0$, and generally $B_n = r^n B_0$. Then let d_0, d_1, d_2, d_3, d_4 be the deaths in each of the first 5 years of age, during, say the year 1865; if we assume that d_0 die out of B_4 born at the beginning of that year, d_1 will die out of $B_3 = \frac{B_4}{r}$; to obtain the deaths corresponding to B_4 , there-

fore, multiply d_1 by r ; for the same reason d_2 is multiplied by r^2 , &c., and the correct probability of living becomes

$$p = \frac{B_4 - (d_0 + rd_1 + r^2d_2 + r^3d_3 + r^4d_4)}{B_4},$$

Through the omission of this correction in the tables, they understate the probability of dying, and overstate the probability of living, from which the survivors are deduced, unless there is a countervailing element. Fluctuations of the annual births also affect the results.

The errors of the data and of the method do not probably affect sensibly the comparative results, which agree closely with those deduced independently from the deaths, and the enumerated population under 5 years of age. (See Table III.)

TABLE VII.—*Population, Deaths, and Average Annual Rate of Mortality per European States, arranged in the Order*

1	2	3	4	5
European States.	Children of the			
	Population (0—1).			
	Both Sexes.	Males.	Females.	Date.
Denmark	76,066	38,716	37,350	Mean 1855 and 1860
Sweden	119,426	60,589	58,837	31st December, 1860
England	545,922	273,911	272,011	Mean 1851 and 1861
France	775,596	394,181	381,415	„ 1856 „ 1861
Netherlands	97,230	49,010	48,220	31st December, 1859
Spain	409,071	208,841	200,230	25th „ '60
Italy	730,690	368,891	361,799	{ Estimated to middle of 1863

1	2	3	4	5
European States.	Children of the			
	Population (1—3).			
	Both Sexes.	Males.	Females.	Date.
Sweden	215,384	108,503	106,881	31st December, 1860
Denmark	132,463	66,621	65,842	Mean 1855 and 1860
England	1,020,322	511,646	508,676	„ 1851 and 1861
Netherlands	158,209	79,417	78,792	31st December, 1859
Italy	1,270,949	642,520	628,429	{ Estimated to middle of 1863

1	2	3	4	5
European States.	Children of the			
	Population (3—5).			
	Both Sexes.	Males.	Females.	Date.
Sweden	178,731	89,694	89,037	31st December, 1860
Denmark	121,596	61,695	59,901	Mean 1855 and 1860
England	965,389	483,837	481,552	„ 1851 and 1861
Netherlands	145,759	73,412	72,347	31st December, 1859
Italy	990,668	499,624	491,044	{ Estimated to middle of 1863

Cent. of Children of the Ages 0—1; 1—3; and 3—5; in some of the indicated by the Mortality in Col. 10.

6	7	8	9	10	11	12
Age 0—1.						
Deaths (0—1) (Exclusive of Still-born).				Average Annual Rate of Mortality per Cent.		
Years in which Deaths occurred.	Both Sexes.	Males.	Females.	Both Sexes.	Males.	Females.
5 years, 1855—59	52,305	29,316	22,989	13·75	15·14	12·31
2 „ '60—61	33,864	18,523	15,341	14·18	15·28	13·04
10 „ '51—60	996,630	557,213	439,417	18·26	20·34	16·15
5 „ '56—60	865,429	477,193	388,236	22·32	24·21	20·36
4 „ '58—61	92,363	50,707	41,656	23·75	25·87	21·60
5 „ '58—62	510,618	—	—	24·96	—	—
} 1 year, 1863	199,712	108,760	90,952	27·33	29·48	25·14

6	7	8	9	10	11	12
Age 1—3.						
Deaths (1—3).				Average Annual Rate of Mortality per Cent.		
Years in which Deaths occurred.	Both Sexes.	Males.	Females.	Both Sexes.	Males.	Females.
2 years, 1860—61	13,536	7,062	6,474	3·14	3·25	3·03
5 „ '55—59	23,089	11,855	11,234	3·49	3·56	3·41
10 „ '51—60	516,161	262,828	253,333	5·06	5·14	4·98
4 „ '58—61	39,651	19,989	19,662	6·27	6·29	6·24
} 1 year, 1863	108,282	55,800	52,482	8·52	8·68	8·35

6	7	8	9	10	11	12
Age 3—5.						
Deaths (3—5).				Average Annual Rate of Mortality per Cent.		
Years in which Deaths occurred.	Both Sexes.	Males.	Females.	Both Sexes.	Males.	Females.
2 years, 1860—61	5,441	2,793	2,648	1·52	1·56	1·49
5 „ '55—59	11,656	5,797	5,859	1·92	1·88	1·95
10 „ '51—60	193,792	96,841	96,951	2·01	2·00	2·01
4 „ '58—61	14,309	7,237	7,072	2·45	2·46	2·44
} 1 year, 1863	31,602	15,997	15,605	3·19	3·20	3·18